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->From the Editor's Keyboard "Saying it like it is!"
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This coming week, we'll be celebrating a "sleepy" holiday, called Veterans Day. In recent years, the holiday has taken on more significance; and it should continue to be so. People tend to forget all that our veterans have done for this country throughout our history. We cannot just celebrate current day veterans, but all those who have served our country from its beginnings.

Just think, our oldest surviving veterans served in World War II, a war that ended less than 70 years ago. That's not that long ago. So, try and do your part and remember what these veterans have gone through to support our way of life, and protect us. They deserve that, and more.

Until next time...

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->In This Week's Gaming Section - PlayStation 4 Launch Freebies!
""""""""""""""""""""""""""""""""" Xbox, Can You Hear Me Now?
We Play With The Steam Machine!
And more!

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->A-ONE's Game Console Industry News - The Latest Gaming News!
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PlayStation 4 Launch Freebies

Sony's PlayStation 4 is just one week away, but it turns out the company was saving one surprise for today. Three of them, in fact. For a limited time, PS4 buyers in the United States and Canada will receive three bonuses packed in with the console. First is $10 worth of PlayStation

Store credit that you're free to use however you'd like, be it for a game purchase or HD movie rental. Next is a 30-day trial for Sony's Music Unlimited service. Unfortunately, this one's only valid for new premium plan subscribers. But the third voucher is arguably the most important of all three: PS4 owners in North America will get 30 days to try out PlayStation Plus. Sony's monthly service is required for most online multiplayer gaming, so we're happy to hear that Sony is making it easy for users to get acclimated with Plus. You'll also have access to other perks that come with membership including Sony's Instant Game Collection and cloud storage for your game saves.

Xbox, Can You Hear Me Now? One Requires Repetition

Like a stubborn family member or insubordinate employee, Xbox One owners might need to tell their fancy new console what to do more than once.

In flashy commercials that began airing last week to promote Microsoft's upcoming video game system, an array of users verbally command their Xbox Ones to do stuff like answer a Skype call, fire up a "Titanfall" match or play the latest "Star Trek" film. The ads leave out one detail: They probably had to repeat themselves a couple of times for it to work.

At a demonstration of the Xbox One this week organized by Microsoft, the new version of the company's voice-and-motion-detecting Kinect sensor didn't work nearly as flawlessly in real life. The Xbox 360 successor, which is scheduled for release Nov. 22, required several commands to be repeated for the response to pop up on screen.

During a private 45-minute presentation showcasing the console's media and entertainment capabilities, about 10 of 45 voice commands issued had to be repeated by a Microsoft spokesman some as many as four times. Kinect didn't immediately detect such orders as "Xbox, watch ESPN" and "Xbox, Bing movies with Sandra Bullock" during the demo.

"Everything you're seeing here is going to get better," promised Jose Pinero, senior director of marketing and public relations for Xbox, at the conclusion of Wednesday's demo. "Right now, we're still a couple of weeks away but voice, the more you use it and the more the system learns, the more accurate it becomes. We're still working on fit and finish."

When the company unveiled the Xbox One at its Redmond, Wash., headquarters last May, Microsoft hyped the machine not as a super-powered gaming console but as an all-in-one entertainment solution for living rooms that would allow users to easily switch between and snap together activities on a TV screen, without needing to mash buttons.

The previous Kinect sensor was equally billed as a game changer when it debuted in 2010 but was considered by many gamers to ultimately be a gimmick.

Unlike the last Kinect, Microsoft is including the new sensor with each Xbox One system, which will cost $499. The updated version of the camera has a field of vision that's 60 percent wider than Kinect for Xbox 360. It can also detect more bodies, as well as heart rates and facial expressions.

Sony Corp. will similarly release an updated PlayStation Camera when its

PlayStation 4 debuts a week ahead of the Xbox One, but that sensor is optional for the PS4, which cost $100 less than the Xbox One.

"Microsoft got so intoxicated by the first generation of Kinect that I think they're just assuming people are still really excited about Kinect," said James McQuivey, Forrester Research analyst and author of "Digital Disruption: Unleashing the Next Wave of Innovation."

McQuivey said because Microsoft has turned its attention to other audiences besides just gamers, they could potentially sell half as many Xbox Ones as they did Xbox 360s over the next-gen console's lifetime, especially if the system doesn't work as advertised.

While the Xbox One's voice detection did not function properly during Wednesday's demo, other Xbox One features operated without fault. Graphically, the slick Xbox One interface was able to almost seamlessly switch between such features as playing "Forza Motorsport 5," watching a live episode of "Let's Make a Deal" and viewing a channel guide.

Microsoft calls its listings OneGuide, and users can curate which TV channels and media apps appear and in what order. The Xbox One can play live TV and provide listings if hooked up to a TV receiver, but it can't act as a TV recording device, although the Xbox One can record and upload footage captured from games and with the Kinect sensor.

Microsoft announced Friday that streaming content apps like Netflix, Hulu Plus, Amazon Instant Video, VUDU and Crackle would be among the first batch coming to the console before spring 2014. Others bringing apps to Xbox One include the networks ESPN, Univision, Fox, CW and HBO, as well as the NFL.

We Play With The Steam Machine, Valve's Game Console of The Future

Valve Corporation, the video game developer responsible for Half-Life, Portal, Team Fortress, and the digital distribution platform Steam, has an ambitious plan to reinvent the video game console. But don t expect the so-called Steam Machine to take on the Xbox One and PlayStation 4 quite yet. Right now, the company is focused on catching the attention of 65 million PC gamers who've historically turned to expensive custom rigs in the name of high-FPS entertainment and it just might have a shot at that.

Last month, Valve invited us to its Bellevue, Washington headquarters to see one of the very first Steam Machines in action, try the Steam Controller, and obtain further insight into the company's plans.

Here s what we learned there.

The Steam Box

Valve will ship 300 prototype Steam Machines to beta testers this year, and there's nothing particularly special about their specs. That s kind of the point, though: the first Steam Machine is a computer that can fit bog standard parts just like a full-size gaming rig, and yet fit into your entertainment center. Valve's steel and aluminum chassis measures just over 12 inches on a side and is 2.9 inches tall, making it a little bigger than an Xbox 360 and smaller than any gaming PC of its ilk. And

yet the box manages to fit a giant Nvidia GeForce GTX Titan graphics card and a full desktop CPU and keep those parts quiet and cool without cramming them in like a jigsaw puzzle.

The secret is actually quite simple, it turns out: Valve designed the case so the parts can breathe individually. The CPU blows air out the top, the power supply out the side, and the graphics card exhaust out back, and none share any airspace within the case.

That might sound like common sense, but it s remarkably hard to find a case that does so while still making it easy to drop components in. Here, the key component responsible for dividing those three zones is a simple plastic shroud which unscrews in a jiffy. The box we touched was already surprisingly cool and quiet, but Valve's still tweaking the design: we saw Valve printing a couple of the shrouds as we walked through its rapid prototyping lab.
Steam_m_controller_hero

The Steam Controller

The box isn't the primary thing that Valve's prototyping, though. While the company's Xbox-sized gaming PC is only a model to inspire hardware partners, Valve tells us it will produce and sell the Steam Controller all by itself.

For the past two years, the company's been trying to design an input device with the precision of a mouse and keyboard, but the versatility of a gamepad. Valve wanted something that would work in the living room, but would also support virtual reality and wearable computing down the road. Valve designer Greg Coomer says that starting out, the question was open-ended: "Clearly a mouse and keyboard isn't going to be the right thing for someone wearing a computer around, so what should we build?" the team asked itself.

The answer wasn't immediately clear.

The team walked me through a succession of over a dozen different prototypes, starting with a crazy magnetic break-apart Xbox 360 controller with Wii-like motion controls for both hands, buttons behind each finger, and an embedded trackball, of all things.

Valve's Steam Controller and Steam Machine prototypes

Though PC manufacturers largely abandoned trackballs years ago BlackBerry phased them out in 2010 Valve found it an excellent alternative to a mouse. "The trackball became the thing that we spent a lot of time developing," says Coomer. The team tried small trackballs, then bigger trackballs ("Higher mass means you get more momentum and a little more area to play with you get finer grain control") then pushed the trackball all the way through the controller to expose the back of the ball as well. "You could spin it, grab it, stop it free your thumb on this side while still moving the ball on the other side," the team says.

" "We wanted to move input forward for the PC.""

Originally, Valve wanted to revolutionize PC input, but it soon realized it needed to focus on a much more fundamental goal: simply getting the library of existing Steam games to work with a new controller. To do that, the company needed a way to make many PC gaming functions possible

on a controller without the 104 keys a keyboard affords. Early on, the team decided to go with a touchscreen that could virtualize those keys instead of adding more buttons. "For all of Valve’s existence, we’ve been a software company, and we wanted as much as possible to have control over the input experience through software," Coomer explains.

Then, the team decided they wanted the same kind of control over the trackball but that proved impossible. "You can’t ship a software update to change the diameter of the ball or the mass or anything."

" "At some point we said ’screw this, let’s make all the buttons a touch surface.’""

From there, design evolved organically. The trackball made way for a trackpad, which could be programmed not just to emulate a mouse, but also support gesture control. One trackpad became two (and two became a giant touch surface before Valve came to its senses). Valve added tiny solenoid actuators to provide haptic feedback. The entire shape of the controller went concave so the fleshy base of a user’s thumbs wouldn’t interfere with the touchpads.

What Valve left out of the Steam Controller is almost as intriguing as what went in. Though Valve co-founder Gabe Newell told us that the company wanted to put biometric sensors into game controllers, the team discovered that hands weren’t a good source of biofeedback since they were always moving around. However, the team hinted to me strongly that an unannounced future VR headset might measure your body’s reaction to games at the earlobe. Such a device could know when you re scared or excited, for instance, and adjust the experience to match.

Another prototype controller also had a detachable "handheld input communication and computing core" instead of the touchpads, which you could insert into racing wheels and other peripherals as well. "I think we might come back to that someday," says Coomer.

What Valve wound up with the controller it will actually ship with Steam Machines isn’t quite complete. The consumer version, a wireless touchscreen model, won’t be available until next year. But I did get to try a prototype with a wired USB cable and four buttons in place of the touchscreen, and I have to say: those touchpads are pretty wild.

I tried Portal 2, Trine 2, and Metro: Last Light using the controller, and I must admit the controls weren’t immediately intuitive. Pressing buttons on the back of the controller to jump, for instance, felt pretty unnatural after spending decades using my thumbs. It was also rather disorienting to have my character move as soon as I moved my left thumb the slightest amount, since I’ve become accustomed to resting them on an analog stick or the WASD keys of a keyboard. It also felt pretty weird to have my thumbs pulsate with haptic feedback as they moved around.

"A learning curve, but crowdsourced controls could help"

But it wasn’t that the controls didn’t work well, they were simply unfamiliar. The touchpads are surprisingly accurate, and they make first-person shooters and other mouse-friendly games far more accessible than any analog stick can afford. You can sweep your thumb across the pad to turn on your heel, then move it a tiny bit more to line up a headshot without having to compensate for a joystick’s return motion. You can push a thumb to the very edge of the pad to keep moving continuously. You can even use both touchpads simultaneously in cursor-driven games to move

the mouse cursor faster than with either alone.

And importantly, you won’t have to settle for default generic controls or painstakingly figure out which keys should bind to which buttons by yourself. Valve is crowdsourcing controller profiles for every Steam game, allowing players to vote up the best sets of controls, and it’s simple to tweak them afterwards as well. When I found that the left trackpad was too sensitive in Portal 2, I simply turned it down.

As far as performance is concerned, Valve’s Steam Machine with SteamOS certainly seemed up to snuff, at least with these high-end components. The team switched between a Windows and SteamOS box halfway through our demo, and I couldn’t tell the difference.

After a short demo, I got an opportunity to ask my burning questions about where all of this is going.

First, circle January on your calendar. That’s when the other shoe will drop; Valve’s hardware and software partners will reveal the actual Steam Machines that will ship to consumers, and the games that will come to the Linux platform, at the 2014 Consumer Electronics Show.

There will be a number of different Steam Machine boxes on sale in 2014, and Valve expects them to arrive mid-year. Some of those boxes will be far smaller and / or cheaper than Valve’s own prototype unit. "You can get far smaller, and that’s what many OEMs are doing I think it’s safe to say less than a quarter of the size," the team told me.

Of course, when they get to that size, they won t be using full-size graphics cards any more. Intel’s integrated graphics are a possibility there: "We’re super interested in Iris Pro." When I ask whether Intel or AMD might make special chips to bring down the price of truly powerful integrated graphics, the room goes quiet for a moment. "We don t have an answer that we can give you before January," the team answers.

The Steam Controller has a gyroscope, it turns out, one which Valve plans to enable in a software update to add motion control. The company will be shipping an API for games that uses the controller’s touchpads and touchscreen natively when it rolls out the prototype units, and all of Valve’s own game development teams are already integrating support into their games.

But don’t expect Valve to make Half-Life 3 exclusive to SteamOS to help lift the Linux-based operating system off the ground. "It’s against our philosophy to put a game in jail and say it only works on Steam Machines," says Valve’s Doug Lombardi. Even though the company locked Half-Life 2 to Steam years ago, the team appears to have thought better of that decision. "That may or may not have been a good idea given the condition Steam was in at the moment."

Even without exclusive Valve games, though, SteamOS might have more support than you’d expect. Valve’s Anna Sweet says she started talking to partners about Linux three years ago, and games will be surprisingly easy to build. "If you’re using the Unity engine, you’re already done if you’ve done a Mac game, you’re most of the way there."

When I ask whether Steam Machines will have a dedicated hardware specification, the team reveals that they’re working on something a little more elegant: a system built into Steam that shows you which games your hardware configuration can actually run, and conversely, what hardware

you’d need to buy to play a given game well based on the real-world data about computer configurations that Valve already collects with its Steam Hardware Survey.

"It’s one of these places where Steam is particularly and perhaps uniquely positioned to be able to actually help customers we’re sitting at the nexus of these hardware specs, so we can harvest data about what’s going on, and repeat it back in a digestible form to every Steam user who cares," Coomer explains. Valve says it hasn’t hammered out all the details yet, but it plans to launch such a feature next year.

Valve might be building its own VR headset, but it’s also thinking of leveraging Steam to help the lauded Oculus Rift virtual reality headgear get the software traction it needs. "We’ve been talking to Oculus pretty extensively about how we can help them with Steam."

Last but not least, SteamOS won’t just be about games: the company plans to add other services for video and music playback. "However, we are not planning support for spreadsheets," quips Lombardi.

We left Valve’s headquarters with the biggest, most important questions unanswered questions that will determine whether the Steam Machine could legitimately challenge game consoles from Sony and Microsoft. Valve wouldn’t tell me who the company’s hardware and software partners are, what Steam Machines or the Steam Controller will cost, or which killer games might make the Linux-based SteamOS an attractive Windows alternative.

But over the course of my visit, Valve made it clear that’s not the point quite yet. The team is focused on serving its existing PC customers above all else, and doing it in a relaxed fashion. "We’ve been speaking as if it’s a foregone conclusion that everyone wants to be in the living room. That’s not true, and it’s great that that’s not true," says Coomer. "There’s a little bit of consternation around our most dedicated customers that we might try to shuttle them into a different room in the house. That’s not what we’re trying to do at all."

Speaking as one of those dedicated customers, I can say that what Valve has built is fairly intriguing even right now: one of the most attractive and customizable miniature computer cases ever built, and a controller with the precision if not the feel of a mouse. Valve admits that it has "a lot to accomplish over the next year or two" to prove that its efforts have been worthwhile, but I’m already excited for the Steam Controller. I can hardly wait till January to see what Valve s partners have been cooking.

The Positive Effects Games Have on Your Brain

The Max Planck Institute for Human Development and CharitØ University Medicine St. Hedwig-Krankenhaus have discovered that video games are beneficial for your brain’s "spatial orientation, memory formation and strategic planning as well as fine motor skills."

Berlin scientists tasked adult subjects to play Super Mario 64 "over a period of two months for 30 minutes a day." An MRI showed brain volume quantified in players who didn’t typically play games, while folks who played games "showed increases of grey matter, in which the cell bodies

of the nerve cells of the brain are situated."

Additionally, the report notes, the more someone actually wanted to play games, the more positive the effects actually had on someone. Simone Kühn, senior scientist on the study, asserts that video games can be used therapeutically for patients suffering from schizophrenia, post-traumatic stress disorder or neurodegenerative diseases such as Alzheimer s dementia.

Presently, there’s an ongoing study on the effects of games on post-traumatic stress disorder.

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A-ONE’s Headline News
The Latest in Computer Technology News
Compiled by: Dana P. Jacobson

Snowden Persuaded Other NSA Workers To Give Up Passwords

Former U.S. National Security Agency contractor Edward Snowden used login credentials and passwords provided unwittingly by colleagues at a spy base in Hawaii to access some of the classified material he leaked to the media, sources said.

A handful of agency employees who gave their login details to Snowden were identified, questioned and removed from their assignments, said a source close to several U.S. government investigations into the damage caused by the leaks.

Snowden may have persuaded between 20 and 25 fellow workers at the NSA regional operations center in Hawaii to give him their logins and passwords by telling them they were needed for him to do his job as a computer systems administrator, a second source said.

The revelation is the latest to indicate that inadequate security measures at the NSA played a significant role in the worst breach of classified data in the super-secret eavesdropping agency’s 61-year history.

Reuters reported last month that the NSA failed to install the most up-to-date, anti-leak software at the Hawaii site before Snowden went to work there and downloaded highly classified documents belonging to the agency and its British counterpart, Government Communication Headquarters.

It is not clear what rules the employees broke by giving Snowden their passwords, which allowed the contractor access to data that he was not authorized to see.

Snowden worked at the Hawaii site for about a month last spring, during which he got access to and downloaded tens of thousands of secret NSA documents.

"In the classified world, there is a sharp distinction between insiders and outsiders. If you've been cleared and especially if you've been polygraphed, you're an insider and you are presumed to be trustworthy," said Steven Aftergood, a secrecy expert with the Federation of American Scientists.

"What agencies are having a hard time grappling with is the insider threat, the idea that the guy in the next cubicle may not be reliable," he added.

Officials with the NSA and the Office of Director of National Intelligence declined to comment due to a criminal investigation related to Snowden, who disclosed previously secret U.S. government mass surveillance programs while in Hong Kong in June and then fled to Russia where he was granted temporary asylum.

People familiar with efforts to assess the damage to U.S. intelligence caused by Snowden's leaks have said assessments are proceeding slowly because Snowden succeeded in obscuring some electronic traces of how he accessed NSA records.

The sources did not know if the NSA employees who were removed from their assignments were given other duties or fired.

While the U.S. government now believes it has a good idea of all the data to which Snowden could have accessed, investigators are not positive which and how much of that data Snowden actually downloaded, the sources said.

Snowden and some of his interlocutors, such as former Guardian writer Glenn Greenwald, have said that Snowden provided NSA secrets only to media representatives such as Greenwald, filmmaker Laura Poitras, and a reporter with the British newspaper.

They have emphatically denied that he provided any classified material to countries such as China or Russia.

The revelation that Snowden got access to some of the material he leaked by using colleagues' passwords surfaced as the U.S. Senate Intelligence Committee approved a bill intended in part to tighten security over U.S. intelligence data.

One provision of the bill would earmark a classified sum of money - estimated as less than $100 million - to help fund efforts by intelligence agencies to install new software designed to spot and track attempts to access or download secret materials without proper authorization.

The bill also requires that the Director of National Intelligence set up a system requiring intelligence contractors to quickly report to spy agencies on incidents in which data networks have been penetrated by unauthorized persons.

Twitter Likely To Price Above Expected $25 Range

Twitter Inc. is likely to price its hotly anticipated initial public offering later on Wednesday above an already bumped-up target range, according to sources familiar with the process.

While final pricing is still being hashed out between Twitter management and its underwriters, the two sources said the price was likely to be above the $25 top end of the range announced on Monday. A price at that level would value the company at more than $14 billion.

The sources, who declined to be named because the process is not public, said on Wednesday the price could hit as high as $28.

Goldman Sachs Group Inc, which is largely controlling the underwriting process, declined to comment.

The underwriters are trying to walk a delicate line between getting the best price for Twitter management while avoiding the pitfalls of the May 2012 IPO for Facebook Inc, whose shares fell on their first trading day on concern the underwriters had overvalued the company.

Jerry Jordan, manager of the $48.6 million Jordan Opportunity Fund who has Facebook as the biggest position in his portfolio, said Twitter's roadshow presentation was much stronger than Facebook's in that it really spoke to how the company was going to monetize its business.

"It was one of the most impressive IPO presentations I have ever seen," he said. The presentation was so convincing that Jordan, who had planned to stay away from Twitter for the time being, has put in for a pre-IPO allocation, he said, declining to say how much he requested.

Microblogging network Twitter, which has yet to turn a profit, has amassed 230 million users in seven years, including heads of state, celebrities and activists. About half of all U.S. adult Twitter users said they get news through the social media platform, according to a recent Pew Research survey.

Twitter hiked its target IPO price on Monday to a range of $23 to $25 a share from an initial range of $17 to $20, meaning it would raise up to $2 billion.

Twitter is expected to trade on the New York Stock Exchange on Thursday, under the ticker TWTR.

Twitter Shares Soar in Frenzied NYSE Debut

Twitter Inc shares jumped 73 percent in a frenzied trading debut that drove the seven-year-old company's market value to around $25 billion and evoked the heady days of the dot-com bubble.

The strong performance on Thursday is encouraging for the venture capitalists who have backed other consumer Web startups, such as Square or Pinterest, though it sounded alarm bells for some investors who cautioned that the froth was unwarranted.

"@twitter opening at $45/share? Almost 50x revenues! We are officially in another tech bubble," tweeted financier and investment advisor Steve Rattner.

The stock closed its first day of trade on the New York Stock Exchange at $44.90 a share after hitting a session-high of $50, nearly double the initial public offering price of $26 set late on Wednesday.

Twitter could raise $2.1 billion if an underwriters' over-allotment is exercised, as expected, making it the second largest Internet offering in the United States behind Facebook Inc's $16 billion IPO last year and ahead of Google Inc's 2004 IPO, according to Thomson Reuters data.

Fans believe that Twitter, which has 230 million users, has established itself as an indispensable Internet utility alongside Google and Facebook, and that it has only scratched the surface of its potential as a global advertising medium.

"When people use Twitter they are following certain people, they're searching for specific information," said Mark Mahaney, an analyst at RBC Capital Markets. "There are powerful marketing signals that are almost Google-esque, something that Facebook doesn't really have."

The IPO was shadowed for months by Facebook's troubled 2012 debut, in which the shares quickly fell below their offering price amid trading glitches and subjected the company and its lead banker, Morgan Stanley, to accusations that they had been greedy in pricing the deal.

Twitter's opening appeared to go off without a hitch, prompting Anthony Noto, the Goldman Sachs banker who led the IPO, to write a simple Tweet: "Phew!"

Still, Twitter may find itself subject to the opposite criticism, that it had priced the shares too low and left more than a billion dollars on the table.

"In my mind they certainly could've raised the price on this thing and gone into the low 30s," said Ken Polcari, director of the NYSE floor division at O'Neil Securities. "From an outsider looking in I would say they were overly cautious because they didn't want a disaster on their hands ... I'm sure the company didn't want a Facebook debacle, I get that, but I think they were overly cautious and it cost them some money."

The 70 million IPO shares represent about 13 percent of the company's common shares. Twitter was the most actively traded stock on Thursday, with around 117 million shares changing hands.

Heavy demand for the IPO was apparent before the final pricing. Twitter was able to price the IPO above an already raised indicative range, and the deal still attracted investor subscriptions that totaled 30 times the number of shares on offer, according to market sources.

At Twitter's headquarters in San Francisco, offices opened early and hundreds of employees flocked to the 9th floor cafeteria to watch the festivities on TV while eating "cronuts," a croissant-donut hybrid, made by Twitter's resident chef, Lance Holton.

The IPO is the latest milestone for a service that was born out of a nearly-defunct startup in 2006 and was derided by many in its early years as a silly fad dominated by people talking about what they had for breakfast.

But Twitter quickly began to penetrate popular culture in unexpected ways, with its open design and broadcasting format attracting celebrities, athletes, politicians and anybody who wanted to share short, punchy thoughts with a digital audience.

Its business potential developed more slowly, and the company appeared to be floundering as recently as three years ago, when it was riven by management turmoil and frequently crippled by service outages.

Under Dick Costolo, who took over as CEO in October 2010, Twitter has rapidly ramped up its money-making engine by selling "promoted tweets," messages from marketers that are distributed to a wide-ranging but targeted group of users. In the third quarter, Twitter had $168 million in revenue, it said, more than double from a year prior.

The NYSE, which snatched the listing away from its tech-focused rival, Nasdaq, marked Twitter’s debut with an enormous banner with the company’s blue bird logo along its Broad Street facade.

British actor Patrick Stewart, of Star Trek fame, rang the opening bell at the Big Board together with nine-year-old Vivienne Harr, who started a charity to end childhood slavery using the microblogging site.

"I guess I represent the poster boy for Twitter," Stewart said, adding that he had only been tweeting for about a year.

Costolo and Twitter’s three co-founders - Evan Williams, Biz Stone and Jack Dorsey - appeared on the packed exchange floor to witness the beginning of trade.

At current valuations, the stakes owned by Williams and Dorsey would be worth around $2.7 billion and $1.1 billion, respectively. Costolo, who invested $25,000 in the fledgling company in 2007, holds a 1.4 percent stake worth about $360 million.

Investor enthusiasm for the microblogging company defied traditional valuation analyses. The shares traded at about 22 times forecast 2014 sales, nearly double the multiple at social media rivals Facebook and LinkedIn Corp, even though Twitter is far from turning a profit and posted a loss of almost $70 million for its most recent quarter.

The hefty valuations were cause for celebration for Twitter insiders and venture capital backers, such as Union Square Ventures, Spark Capital and Benchmark Capital. But some analysts warned that a correction may be in store.

"With a price that pushes into the high 30s and beyond, Twitter is simply too expensive," Pivotal Research’s Brian Wieser wrote in a note cutting his rating on the stock to "sell" from "buy".

"One way to justify a $45 price in our model would involve presuming that Twitter could generate more than $6bn in annual revenue by 2018. However, we think that would seem overly optimistic."

Fund managers who got small allocations at the IPO were hopeful the stock would trade down after Thursday’s pop.

"We have a target of $40 and we won’t buy more as long as it is trading above that," said Mark Hawtin, portfolio manager of the GAM Star Technology Strategy.

Jerry Jordan, manager of the $48.6 million Jordan Opportunity Fund, who got a small allocation, said he would buy more of Twitter if it trades down around $30-$35.

"A lot of these sexy IPOs have a big pop on the first day and then they grind sideways," Jordan said.

As Twitter’s stock soared after the opening, the company’s market value, including restricted share units and other securities that could be exercised in the coming months, was over $28 billion.

The company said in its investor prospectus that more than three-quarters of its users are outside the United States. Despite its early reputation as a hangout for Silicon Valley early adopters and tech geeks, some of its most active markets now include Japan, Indonesia, Brazil and Saudi Arabia.

The fast-moving, mobile service was credited with fueling popular protests that upended the Arab world in 2011. It served as a lifeline to the outside world for its users during natural disasters like Hurricane Sandy, and also instantly relayed news such as early rumblings of the 2011 U.S. raid on Osama bin Laden’s compound in Pakistan.

"Twitter has, when coupled with the increasing distribution of smart phones and reach of the Internet, an impact on global connectivity and transparency," said P.J. Crowley, the former U.S. State Department spokesman. "It has definitely contributed to the acceleration of the news process and helped to expand the availability of information sources to a wide range of people."

The three most-followed accounts belong to a trio of pop stars: Katy Perry, Justin Bieber and Lady Gaga. U.S. President Barack Obama comes in fourth.

The 140-character messages have spawned an Internet culture of its own. The "hashtag," a pound symbol devised by early Twitter users to denote the topic of a conversation, has became ubiquitous, with the word even becoming an ironic expression parodied by the likes of "Saturday Night Live."

Twitter’s successful debut is likely to stoke interest in other up-and-coming consumer Internet companies such as ride service Uber, scrapbooking site Pinterest, accommodation service Airbnb and the payment start-up Square, all of which boast private-market valuations well north of a billion dollars and could go public in the coming years.

Kevin Hartz, CEO of Eventbrite and an early investor in Pinterest and Airbnb, said the IPO floodgates might open now.

"The pendulum is swinging back in a surprising way," Hartz said. "There’s a pent-up supply of a lot of quality companies."

Still, two early social media success stories, Groupon Inc and Zynga Inc, have suffered major reversals since going public. Groupon, despite big gains in its shares this year, still trades at less than half its 2011 IPO price. Zynga is worth about a third of its 2012 IPO price.

And first-generation social media firms such as MySpace have all but vanished as fickle users moved on to the next big thing.

World Cybersecurity Leaders Call for Cooperation

Governments and businesses spend $1 trillion a year for global cybersecurity, but unlike wartime casualties or oil spills, there’s no clear idea what the total losses are because few will admit they’ve been compromised. Cybersecurity leaders from more than 40 countries are gathering at Stanford University this week to consider tackling that information gap by creating a single, trusted entity that would keep track of how much hackers steal.

Chinese Minister Cai Mingzhao acknowledged there are issues of trust to overcome with some U.S. cybersecurity firms pointing to attacks coming from the Chinese military. But he said countries must work together.

"In cyberspace, all countries face the same problems and ultimately share the same fate," he said.

Mingzhao also urged counterparts to establish new international rules for behavior in cyberspace, a move State Department cyberissues coordinator Christopher Painter said isn’t necessary.

"I don’t think we need a new global instrument for all these different issues," he said, noting the adopting worldwide rules would take 5 to 10 years "and you end up with something that’s not as strong as what we have now."

Painter, who spoke after Mingzhao, said a U.S.-China joint cybersecurity working group announced by Secretary of State John Kerry in April has already met once and is moving forward on cooperating against third party threats.

It’s crucial work, said Stanford University economics professor John Shoven, who directs the Stanford Institute for Economic Policy Research. He warned of the "tremendous disruption the lack of trust in the security of the Web would do to the economy."

"We can’t let that happen," said Shoven.

Sergio Benedetto, president of the Institute of Electrical and Electronics Engineers Communications Society, noted that the Internet can be mysteries for non-experts.

"For many diplomats and politicians, the world of cyberspace is still like a roomful of scattered puzzles," he said.

Thus, he said, scientists need to be a part of important global discussions.

One key initiative many agreed on was to create the first worldwide, high level benchmarks for cybersecurity, in hopes of getting better assessments of the frequency and damages of cybersecurity compromises.

The Cyberspace Cooperation Summit was the fourth annual gathering sponsored in part by the EastWest Institute, a global security nonprofit organization.

Stroz Friedberg’s Executive Managing Director Erin Nealy Cox co-authored a plan with the Institute to aggregate losses and begin to identify the true costs of cybercrime.

"Our recommendations offer the means to break through the logjam that prevents effective data collection, analysis and reporting, and such global information and intelligence sharing is critical to bolstering security efforts around the world," Nealy Cox said.

The FBI Needs Your Help Capturing Five Cyber Criminals

Thirsty for $100,00 and ready to mutter "Let's enhance" at your computer with your cyber-crime fighting partner? The FBI announced today it has a task for you: The bureau needs help tracking down several men wanted for alleged involvement in hacking millions of computers across the world and defrauding computer users and United States government entities.

The FBI updated its Cyber Most Wanted List today to include five criminals of various nationalities. The biggest name to be included on the list is Andrey Taame, who was involved in Operation Ghost Click. His group's malware scheme of altering user's Doman Name Systems and redirecting computers to spammy websites infected four million computers from more than 100 countries between 2007 and 2011. Around 500,000 of those were housed in the United States.

Ars Technica details the other four guys targeted:

> Two other men from Pakistan, Farhan Arshad and Noor Aziz Uddin, are accused of an international telecommunications scheme resulting in losses of $50 million. Carlos Perez-Melara of El Salvador created a piece of spyware called Lover Spy, which was a service that people could use to spy on their supposed cheating lovers. The malware would obtain passwords, browser history, and other data. Finally, Alexsey Alekseyevich Belan, a Russian citizen, is accused of being involved with data theft from three unnamed American firms in 2012 and 2013.

In a statement from FBI's Richard McFeely, the organization said that "cyber crime knows no boundaries, cyber criminals think they can hide overseas" and is relying on YOU (and our international friends) to capture them.

Rewards range from $50,000 to $100,000, but there is no price on the feeling of creating a safer Internet, huh?

U.S. Spying Harms Cloud Computing, Internet Freedom

The United States' alleged large-scale surveillance of global communications networks will badly harm the U.S. cloud computing industry, the founder of Wikipedia said on Thursday.

Jimmy Wales, who launched the online encyclopaedia service 12 year ago, said the U.S. eavesdropping, revealed by leaks from former U.S. intelligence contractor Edward Snowden, also poses a threat to Internet freedoms by giving an excuse to oppressive regimes to introduce more censorship.

"It's going to have a big impact on the cloud computing industry as people are afraid to put data in the U.S., but it's also devastating for

the kind of work I do," Wales told reporters after speaking at an IT event in Norway.

"If you are BMW, a car maker in Germany,... you probably are not that comfortable putting your data into the U.S. any more," said the former futures trader who is still a key player at Wikipedia, one of the most popular websites in the world.

Cloud computing is an umbrella term for activities ranging from web-based email to business software that is run remotely via the Internet instead of on-site. It is being adopted by big companies and governments globally to cut costs and give flexibility to their IT departments.

Snowden’s leaks revealing the reach and methods of U.S. surveillance have prompted angry calls for explanations from France to Brazil. Germany has been particularly annoyed by revelations that the U.S. National Security Agency (NSA) monitored Chancellor Angela Merkel.

Wales said the revelations made it more difficult to convince oppressive regimes to respect basic freedoms and privacy as Wikipedia seeks to limit censorship of its content.

"They (spying revelations) give the Chinese every excuse to be as bad as they have been... It’s really embarrassing," he said. "It’s an enormous problem, an enormous danger."

China and countries in the Middle East have been most active in filtering Wikipedia content to restrict access to certain information, Wales said.

He said Wikipedia had no plan to introduce advertising.

"If we need to do that to survive, we will do what’s needed to survive, but we are not discussing that," he said. "Some places have to remain free of commerce... Wikipedia is a temple for the mind," Wales said.

Wikipedia has been financed through a non-profit foundation Wikimedia, which reported revenues of $38.4 million for the fiscal year 2011-2012, including $35.1 million in donations and contributions.

Lawyer in NY Silk Road Case: Feds Have Wrong Man

A San Francisco man isn’t the "Dread Pirate Roberts" who prosecutors say was the mastermind behind a secret website that brokered more than $1 billion in transactions for illegal drugs and services, a defense attorney said Wednesday.

Ross William Ulbricht is "not that person," the lawyer, Josh Dratel, told reporters following his client’s first court appearance in New York City. "He’s a regular person, a loyal friend ... someone who has never been in trouble," Dratel added. "We’re denying the charges against him."

Ulbricht, 29, was arrested early last month on federal charges in New York. He is accused of hiding behind the "Dread Pirate Roberts" alias an apparent reference to a swashbuckling character in "The Princess Bride," the 1987 comedy film based on a novel of the same name while operating the Silk Road website.

Authorities brought Ulbricht to New York City on Tuesday night. On Wednesday, the lanky, dark-haired defendant spoke only to answer to a few yes or no questions before a judge ordered him held until his next hearing on Nov. 21, when his lawyer is expected to ask for him to be released for bail.

The Silk Road website allowed users to anonymously browse through nearly 13,000 listings under categories like "Cannabis," ’’Psychedelics" and "Stimulants" before making purchases using the electronic currency Bitcoin. One listing for heroin promised buyers "all rock, no powder, vacuum sealed and stealth shipping," and had a community forum below where one person commented, "Quality is superb."

The website, whose other categories included "Erotica" and "Fireworks," protected users with an encryption technique called onion routing, designed to make it "practically impossible to physically locate the computers hosting or accessing websites on the network," court papers said.

On Oct. 1, authorities shut the site down and arrested the college-educated Ulbricht at a San Francisco public library. Ulbricht was online on his laptop chatting with a cooperating witness about Silk Road when FBI agents took him into custody, authorities said.

Prosecutors announced earlier this month that they had seized about 174,000 Bitcoins in connection with the Silk Road case, valued at more than $33.6 million.

Since Ulbricht’s arrest, a new website has been established to help fund his defense. It accepts donations in Bitcoins.

U.S. Rivals Team Up in Offering Bounties To Secure Internet

Three fierce Internet rivals are teaming up to fight hackers by offering bounties, or cash rewards, to researchers who find critical vulnerabilities in widely used Web technology.

The program is sponsored by Facebook Inc and Microsoft Corp with assistance from a Google Inc security expert, who helped develop the program and will sit on the panel that will evaluate submissions.

The bounties in this program range from $300 to $5,000 depending on the nature of the problem found. The rewards can go higher at the discretion of a review panel. Full details are at: https://hackerone.com/ibb.

"It is meant for those very, very severe bugs that would have dire consequence for the Internet if they were to get into the wrong hands," said Facebook Product Security Lead Alex Rice.

Submissions for the Internet Bug Bounty will be evaluated by a panel of experts from Facebook, Microsoft, Google, the security consulting firm iSEC Partners and Etsy, an online handcraft marketplace.

The three rivals each offer bounty programs of their own to computer security experts who have warned them of product bugs. While the trio competes online in a variety of areas, when it comes to security they cooperate with one another.

"Even if we are fierce competitors... the security teams don’t have to be competitors," Rice said. "Our competition is the bad guys," Rice said.

Rice said the idea for the new bounty program came up one day when he was having drinks with Katie Moussouris, who runs Microsoft’s bounty program and Chris Evans, who works on Google’s Chrome browser security team.

Microsoft separately expanded its own bounty program, which offers up to $100,000 to experts who uncover novel ways to get past advanced security features in its Windows program.

Trove of Adobe User Data Found on Web After Breach

A computer security firm has uncovered data it says belongs to some 152 million Adobe Systems Inc user accounts, suggesting that a breach reported a month ago is far bigger than Adobe has so far disclosed and is one of the largest on record.

LastPass, a password security firm, said on Thursday that it has found email addresses, encrypted passwords and password hints stored in clear text from Adobe user accounts on an underground website frequented by cyber criminals.

Adobe said last week that attackers had stolen data on more than 38 million customer accounts, on top of the theft of information on nearly 3 million accounts that it disclosed nearly a month earlier.

The maker of Photoshop and Acrobat software confirmed that LastPass had found records stolen from its data center, but downplayed the significance of the security firm’s findings.

While the new findings from LastPass indicate that the Adobe breach is far bigger than previously known, company spokeswoman Heather Edell said it was not accurate to say 152 million customer accounts had been compromised because the database attacked was a backup system about to be decommissioned.

She said the records include some 25 million records containing invalid email addresses, 18 million with invalid passwords. She added that "a large percentage" of the accounts were fictitious, having been set up for one-time use so that their creators could get free software or other perks.

She also said that the company is continuing to work with law enforcement and outside investigators to determine the cost and scope of the breach, which resulted in the theft of customer data as well as source code to several software titles.

The company has notified some 38 million active Adobe ID users and is now contacting holders of inactive accounts, she said.

Paul Stephens, director of policy and advocacy for the non-profit Privacy Rights Clearinghouse, said information in an inactive database is often useful to criminals.

He said they might use it to engage in "phishing" scams or attempt to

figure out passwords using the hints provided for some of the accounts in the database. In some cases, people whose data was exposed might not be aware of it because they have not accessed the out-of-date accounts, he said.

"Potentially it’s the website you’ve forgotten about that poses the greater risk," he said. "What if somebody set up an account with Adobe ten years ago and forgot about it and they use the same password there that they use on other sites?"

LastPass Chief Executive Joe Siegrist said that Adobe failed to use best practices for securing the stolen passwords.

The ones in the database were not protected with a technique known as "salting," which means adding a secret code to every password after it is scrambled and before it is stored in the database. That way multiple encrypted versions of the same password never look the same.

Because the passwords were not salted, Siegrist said he was able to identify the most frequently used password in the group, which was used 1.9 million times. The database has 108 million email addresses with passwords shared in multiple accounts.

"I’d say 108 million people fall into the range of likely very easily guessable passwords," he said.

The number of records stolen appears to be the largest taken in any publicly disclosed cyber attack to date.

The largest cyber breach previously reported was a 2009 attack on Heartland Payment Systems in which more than 130 million credit card numbers were stolen, according to Privacy Rights Clearinghouse data. Hackers accessed more than 100 million records from the Sony PlayStation Network in 2011 in another notorious attack.

Mike Spanbauer, managing director of research at the security firm NSS Labs, noted that the impact of the Adobe breach might not be as significant as ones where large numbers of financial records were stolen.

Still, he said that the attack was a strong reminder that consumers and businesses need to be vigilant about making sure they do not reuse passwords.

Microsoft Rushes Out Fix To Prevent Attacks on Office PCs

Microsoft Corp released an emergency software fix on Tuesday after it learned that hackers had exploited a previously undiscovered security flaw in its widely used Office software to infect the PCs of its customers with tainted Word documents.

The software maker said on its website that it had released the software, known as a "Fix It," as a temporary measure until it provides an update that will automatically patch computers to protect against the new threat.

Microsoft said that it had learned of a "very limited" number of attacks that exploited the newly discovered vulnerability, mainly in the Middle East and South Asia. The company did not identify the victims, who

received emails asking them to open the tainted Word documents.

The vulnerability affects customers using Office 2003 and Office 2007 as well as those running Office 2010 on Windows XP and Server 2003.

The attacks took advantage of an undiscovered flaw, or "zero day" vulnerability in industry parlance, which is usually only used on a limited number of high-value targets in a bid to keep the flaws a secret.

Typically, when makers of widely used software programs issue a warning about a zero-day bug, groups of hackers rush to reverse-engineer the Fix Its so they can build computer viruses that also exploit the same vulnerabilities.

Stuart McClure, chief executive officer of the cybersecurity firm Cylance Inc, said that businesses using vulnerable versions of Office should install the Fix It to prevent attacks.

"I definitely think it is something that needs to be patched," he said.

Fix Its are pieces of software for remediating security flaws that must be manually downloaded and installed on PCs. They are designed to protect customers while Microsoft prepares official updates, automatically delivered via the Internet to be installed on computers.

The new Fix It is available at this link:
https://support.microsoft.com/kb/2896666

Microsoft Makes IE 11 Browser Work for Windows 7

Microsoft Corp. said Thursday that it has made its latest browser, Internet Explorer 11, available to users of Windows 7 machines.

The new browser had already been part of the Windows 8.1 upgrade the company released last month.

The browser, available as a free download, improves the performance of websites that use JavaScript. Microsoft says the browser is 9 percent faster than Internet Explorer 10.

It also enables better 3-D graphics rendering in websites, allowing users to manipulate 3-D objects on-screen.

User Burnout Could Threaten Twitter’s Prosperity

They loved it. Now they hate it.

A growing number of celebrities, athletes and self-promoters are burnt out and signing off of Twitter. Many have gotten overwhelmed.

Some people built big audiences on the short messaging service only to have their followers turn against them. Others complain that tweets that once drew lots of attention now get lost in the noise.

As Twitter Inc. prepares to go public this week, the company is selling potential investors on the idea that its user base of 232 million will continue to grow along with the 500 million tweets that are sent each day. The company’s revenue depends on ads it inserts into the stream of messages.

But Wall Street could lose its big bet on social media if prolific tweeters lose their voice.

Evidence of Twitter burnout isn’t hard to find. Just look at the celebrities who at one time or another have taken a break from the service. The long list includes everyone from Alec Baldwin to Miley Cyrus to "Lost" co-creator Damon Lindelof.

Actress Jennifer Love Hewitt lamented "all the negativity" she saw on the service when she quit, temporarily, in July. Actress Megan Fox left nearly a million followers dangling when she checked out in January, explaining that "Facebook is as much as I can handle." Pop star John Mayer deleted his account in 2011, saying Twitter absorbed so much of his thinking, he couldn’t write a song.

"I was a tweetaholic," he told students during a talk at the Berklee College of Music.

If Twitter turns off celebrities who have a financial incentive to stay in close contact with fans, how can the company prevent average users from becoming disenchanted?

For some users, Twitter tiredness sets in slowly. At first, they enjoy seeing their tweets of 140 characters or less bounce around the Web with retweets and favorites. But new connections soon get overwhelming. Obligation sets in not only to post more, but to reply to followers and read their tweets.

Many users conclude that Twitter is a time-sucking seduction and turn away. One who calls herself patrilla$$$thrilla excitedly tweeted "first tweet, wocka wocka" just after she joined in July.

On Wednesday, 161 tweets and 27 followers later, the romance was over. She quit to "fully enjoy the little details in life I miss because I’m too busy here," she tweeted.

The cacophony creeps into everyday life. Twitter fanatics tweet from the dinner table, during a movie, in the bathroom, in bed. Vacations can seem like time wasted not tweeting.

The over-doers suffer from a "fear of missing out" (or FOMO), says Tom Edwards, vice president at themarketingarm, a Dallas-based advertising agency. "Managing our virtual personas, including all of the etiquette that comes with, can be tiresome, especially for those with large followings."

It happens even to people who ought to know better. Just ask Gary Schirr, an assistant professor who teaches a course on social media at Radford University.

In August, while vacationing on a beach, Schirr felt a pang of withdrawal because he had stopped tweeting to his 70,000-plus followers. Then he saw an old condemned house about to be washed away and posted a photo to Facebook and Twitter. He felt relieved when the likes and retweets rolled

in.

"You feel forgotten if you’re not out there," he says. "It’s another sign of addiction. You feel bad if you don’t tweet."

Prolific tweeters stay engaged partly because there are real benefits to a big following, which usually requires tweeting a lot.

Journalists who have large Twitter followings have used them to land better-paying jobs because every click on stories can make more money for their new employer. Actors can land roles on TV or the movies if their digital audience is expected to tag along.

Matt Lewis, a columnist with The Week magazine, says his Twitter following is like "portable equity" that gave him an edge over more established writers earlier in his career. He’s now got nearly 33,000 followers.

Even so, one of Lewis’ more popular stories is titled "Why I hate Twitter." It goes into why the social network became, for him, "a dark place" overrun by "angry cynics and partisan cranks." He became demoralized by the criticism, but he couldn’t pull himself away.

"It’s also like a prison. You can’t check out," he says.

Today, Lewis rarely interacts with his followers and hopes the service will come up with new ways to filter out the hate tweets. "Why should I be harassed if I look at my @ button?" he says.

But he remains amazed at how Twitter has helped him reach new readers, and after some 67,000 tweets, he isn’t giving it up.

Others find that as more people join the service, the deluge of tweets can drown out individual voices.

So says Bob Lefsetz, a music industry analyst who writes an email column titled the Lefsetz Letter.

Twitter, he wrote in July, is "toast." ’’Over. Done. History." His follower count isn’t rising as quickly as before, although it’s still a respectable 57,000-plus. And his tweets don’t see as much action as in the past, which he attributes to too many people tweeting "too much irrelevant information."

"In the old days, I’d get 20 retweets. Now I’ll get none," Lefsetz says. "It makes me not want to play."

Along with the potential for burnout, there’s also the risk that Twitter becomes uncool to the younger generation, especially when services such as Pinterest and Instagram are a tap away.

Devon Powers, an assistant professor of communications at Drexel University, says many of her students have moved on to Snapchat. But there can still be pressure to keep up with the other services.

"There’s all these new obligations to update and report and check in," she says. It can make dropping offline feel like a relief.

"If I get really busy, the first thing I stop doing is checking Twitter," she says. "I’m living my life. I’m not having a commentary about it."

William C. Lowe, Who Oversaw the Birth of IBM s PC, Dies at 72

William C. Lowe, who supervised the creation of IBM s first personal computer, a technological touchstone that he insisted and proved could be conceived, engineered and manufactured in a single year by a company not known for speeding products to market, died on Oct. 19 in Lake Forest, Ill. He was 72.

The cause was a heart attack, his daughter, Michelle Marshall, said.

Apple and other companies had been selling personal computers for several years when IBM began looking for ways to get involved in the business in the late 1970s. The company had long dominated corporate and government mainframe computing by using proprietary software and in-house production. But it was hardly nimble, and its leaders believed it would be left behind if it took its typical years to reach production.

In 1980, Mr. Lowe, who had joined the company as a product test engineer in 1962, right after college, pitched an improbable idea: He would form a team that would build a personal computer in a year. How? The team would bypass IBM s proprietary development model and instead use parts and software made by a growing industry of outsiders. Even IBM seemed surprised when, a year later, the company pulled it off.

On Aug. 12, 1981, the company introduced the IBM Personal Computer, also known as the 5150. It used an operating system called MS-DOS 1.0, made by a little-known company from Washington State named Microsoft. It ran on an Intel 8088 microprocessor and cost $1,565, not including a monitor.

Two decades earlier, an IBM computer often cost as much as $9 million and required an air-conditioned quarter-acre of space and a staff of 60 people to keep it fully loaded with instructions, according to a history on the company s website. The new IBM PC could not only process information faster than those earlier machines, but it could hook up to the home TV set, play games, process text and harbor more words than a fat cookbook.

IBM s entry into personal computing, however belated, was a huge success.

The company had never before had a presence in retail stores. Now customers could buy an IBM computer at Sears presuming Sears was not sold out. Microsoft, Intel and other companies whose products were used benefited tremendously, beginning their transformation from obscure tech companies into household brands.

Collaboration became common in the computer industry. Four years after introducing the IBM Personal Computer, IBM and Microsoft agreed to develop software jointly that would not be exclusive to IBM machines.

We are committed to the open architecture concept, and we recognize the importance of an open architecture to our customers, Mr. Lowe said of the collaboration in 1985.

But the commitment to open architecture and off-the-shelf parts had another consequence. Other manufacturers, like Compaq and Dell, began building IBM compatible machines, also called clones, that were often better and cheaper. They took on the same colloquial name given to the

5150: PC.

Mr. Lowe became a lightning rod for criticism as IBM tried to fend off scores of competitors and develop new hardware and software. For a while, he provided backing to Steven P. Jobs, who was developing his NeXT computer platform after leaving Apple in 1985.

But in 1988, three years after Mr. Lowe became president of the company s Entry Systems Division and two years after he became a corporate vice president, he left IBM, taking a job at Xerox to help it expand its manufacturing lines beyond basic copy machines.

My being here isn t so much a reflection on IBM, Mr. Lowe said from his new offices at Xerox. I feel I still had runway there, but this seemed like such a great opportunity.

In 1991, he became president of the Gulfstream Aerospace Corporation, the maker of corporate jets, and he later held executive positions at New England Business Services and the Moore Corporation, another business services company.

William Cleland Lowe was born on Jan. 15, 1941, in Easton, Pa. He attended Lafayette College in Easton on a basketball scholarship and graduated with a degree in physics. He was the first in his family to graduate from college.

In addition to Ms. Marshall, his survivors include his wife, Cristina; four other children, Gabriela, Daniel, Julie Kremer and James; and 10 grandchildren.

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